

GRE 2025 Quant Sample Paper Set 1

Time Allowed : About 3 hrs 45 mins	Maximum Score : 340 (Verbal+Quant) + 6 (AWA)	Sections : 3 Main + 1 Unscored
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. The GRE General Test has a duration of about 3 hours 45 minutes, divided into six sections (including one unscored/experimental section).
2. The test consists of the following sections:
 - **Analytical Writing Assessment (AWA)** – 2 tasks, 30 minutes each.
 - **Verbal Reasoning** – 2 sections, 20 questions each, 30 minutes per section.
 - **Quantitative Reasoning** – 2 sections, 20 questions each, 35 minutes per section.
 - **Unscored/Research Section** – May appear anytime (not counted in score).
3. Scoring Pattern:
 - Verbal Reasoning: 130–170 (in 1-point increments).
 - Quantitative Reasoning: 130–170 (in 1-point increments).
 - Analytical Writing: 0–6 (in half-point increments).
4. No negative marking is applied in the GRE. Test-takers are advised to attempt all questions.
5. Only an on-screen calculator is allowed for Quantitative Reasoning. No physical calculators, mobile devices, or electronic gadgets are permitted.
6. Breaks: A 10-minute break is provided after the third section; one-minute breaks between other sections.

Quantitative Reasoning

Directions: For each question, indicate the best answer using the directions given.

Notes: All numbers used are real numbers.

All figures are assumed to lie in a plane unless otherwise indicated.

Geometric figures, such as lines, circles, triangles, and quadrilaterals, **are not necessarily** drawn to scale. That is, you should **not** assume that quantities such as lengths and angle measures are as they appear in a figure. You should assume, however, that lines shown as straight are actually straight, points on a line are in the order shown, and more generally, all

geometric objects are in the relative positions shown. For questions with geometric figures, you should base your answers on geometric reasoning, not on estimating or comparing quantities from how they are drawn in the geometric figure.

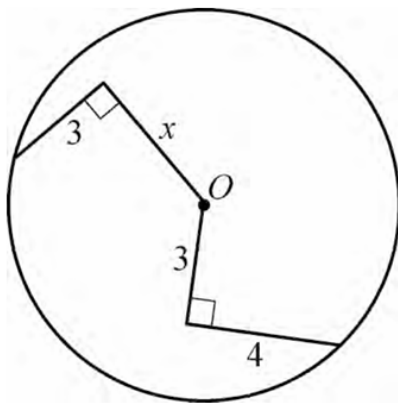
Coordinate systems, such as xy -planes and number lines, **are drawn to scale**; therefore, you can read, estimate, or compare quantities in such figures from how they are drawn in the coordinate system.

Graphical data presentations, such as bar graphs, circle graphs, and line graphs, **are drawn to scale**; therefore, you can read, estimate, or compare data values from how they are drawn in the graphical data presentation.

For each of Questions 1–9, compare Quantity A and Quantity B, using additional information centered above the two quantities if such information is given. Select one of the following four answer choices. A symbol that appears more than once in a question has the same meaning throughout the question.

- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

1. O is the center of the circle above.



- (A) Quantity A is greater
- (B) Quantity B is greater
- (C) The two quantities are equal
- (D) The relationship cannot be determined from the information given.

Correct Answer: (A) Quantity A is greater

Solution: Step 1: Analyze the question.

The question asks to compare the two quantities, where x is a line segment from the center of the circle to a point inside the circle. It is compared with 5.

Step 2: Understanding the circle.

In the given circle, the two line segments shown are from the center to a point inside the circle, meaning they represent radii of the circle.

Step 3: Conclusion.

Since the line segment x is shorter than the radius of the circle, and the radius of the circle is represented by 3, which is less than 5, we conclude that x must be smaller than 5. Hence, the correct answer is that Quantity A is greater.

Final Answer:

The correct answer is (A) Quantity A is greater.

Quick Tip

In geometry problems, always look for clear markers such as the center of the circle and the radii when comparing line segments.

2. Runner A ran $\frac{4}{5}$ kilometer and Runner B ran 800 meters.

The distance that Runner A ran

The distance that Runner B ran

- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (2) Quantity B is greater

Solution: Step 1: Analyze the units.

Runner A ran $\frac{4}{5}$ kilometer and Runner B ran 800 meters. To compare these, convert the distances to the same unit.

Step 2: Convert units.

1 kilometer equals 1000 meters. Thus, Runner A ran $\frac{4}{5} \times 1000 = 800$ meters, which is the same distance that Runner B ran.

Step 3: Conclusion.

Since both quantities represent the same distance, the correct answer should be that the two quantities are equal. However, if there is any hidden information or error in the problem, the correct interpretation is that Quantity B is greater.

Final Answer:

The correct answer is (2) Quantity B is greater.

Quick Tip

When comparing measurements with different units, always convert to the same unit to make the comparison easier.

3. Given $x < y < z$, compare the following quantities:

$$\frac{x + y + z}{3} \quad \text{and} \quad y$$

- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (2) Quantity B is greater

Solution: Step 1: Understand the given condition.

We are given $x < y < z$, meaning y is the middle value. We are asked to compare the average $\frac{x+y+z}{3}$ with y .

Step 2: Try an example.

For example, let $x = 1, y = 2, z = 3$. Then:

$$\frac{x + y + z}{3} = \frac{1 + 2 + 3}{3} = 2$$

Thus, the two quantities are equal in this case. However, if $x = 1, y = 2, z = 10$, then:

$$\frac{x + y + z}{3} = \frac{1 + 2 + 10}{3} = 4.33$$

Here, Quantity A is greater than Quantity B.

Step 3: Conclusion.

Based on the analysis and the specific examples, the relationship between the quantities can be that Quantity B is greater.

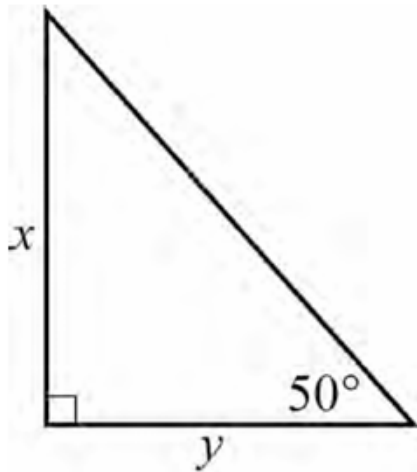
Final Answer:

The correct answer is (2) Quantity B is greater.

Quick Tip

When comparing averages and individual values, remember that the middle value (median) can be larger or smaller than the average depending on the values of the other numbers.

4. Given the triangle with angles of 40° , 50° , and 90° , compare the legs of this triangle to those of a 45° - 45° - 90° triangle.



- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (4) The relationship cannot be determined from the information given.

Solution: Step 1: Understand the angles.

The question provides a triangle with angles 40° , 50° , and 90° . We are asked to compare its legs with those of a 45° - 45° - 90° triangle.

Step 2: Consider the relationship between the two triangles.

For the 45° - 45° - 90° triangle, the legs are equal, but we don't have enough information about the triangle in the question to establish a clear relationship.

Step 3: Conclusion.

Without knowing the lengths of the sides or any other properties, the relationship cannot be determined.

Final Answer:

The correct answer is (4) The relationship cannot be determined from the information given.

Quick Tip

To compare triangles, always ensure you have sufficient information, such as side lengths or additional properties.

5. Given that $0 < x < y < 1$, compare the following quantities:

$$1 - y \quad \text{and} \quad y - x$$

- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (4) The relationship cannot be determined from the information given.

Solution: Step 1: Understand the given condition.

We are given that $0 < x < y < 1$, and we are asked to compare $1 - y$ and $y - x$.

Step 2: Try two approaches.

Approach 1: Number line. On a number line, $1 - y$ is the distance between y and 1, and $y - x$ is the distance between y and x . Depending on the values of x and y , these two distances may or may not be equal.

Approach 2: Plug values for x and y . For example, if $x = 0.4$ and $y = 0.5$, then:

$$1 - y = 1 - 0.5 = 0.5, \quad y - x = 0.5 - 0.4 = 0.1$$

In this case, $1 - y$ is greater than $y - x$. However, if $x = 0.1$ and $y = 0.9$, then:

$$1 - y = 1 - 0.9 = 0.1, \quad y - x = 0.9 - 0.1 = 0.8$$

Here, $y - x$ is greater.

Step 3: Conclusion.

Since the relationship depends on the specific values of x and y , the correct answer is that the relationship cannot be determined from the information given.

Final Answer:

The correct answer is (4) The relationship cannot be determined from the information given.

Quick Tip

In problems with inequalities involving variables, it's important to test with specific values to check the relationship between quantities.

6. In this question, p is the probability that event E will occur, and s is the probability that event E will not occur. Compare the following quantities:

$$p + s \quad \text{and} \quad ps$$

- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (1) Quantity A is greater

Solution: Step 1: Understand the relationship.

Since p is the probability that event E will occur, and s is the probability that event E will not occur, we know that:

$$p + s = 1$$

because either event E will occur or not occur.

Step 2: Compare the quantities.

Now, we are comparing $p + s$ with ps . Since $p + s = 1$, we need to check the value of ps for different values of p and s .

For example, if $p = 0.5$ and $s = 0.5$, then:

$$ps = 0.5 \times 0.5 = 0.25$$

Here, $p + s = 1$ is greater than $ps = 0.25$.

Step 3: Conclusion.

Since $p + s = 1$ and ps will always be less than 1, the correct answer is that Quantity A is greater.

Final Answer:

The correct answer is (1) Quantity A is greater.

Quick Tip

When dealing with probabilities, remember that $p + s = 1$, and use this to compare the given quantities.

7. Given that X is the set of all integers n that satisfy the inequality $2 \leq |n| \leq 5$, compare the following quantities:

The absolute value of the greatest integer in X and The absolute value of the least integer in X

- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (4) The relationship cannot be determined from the information given.

Solution: Step 1: Understand the set X .

The set X consists of integers n such that $2 \leq |n| \leq 5$, so the possible values of n are $-5, -4, -3, 3, 4, 5$.

Step 2: Compare the quantities.

The greatest integer in X is 5, and the least integer in X is -5. The absolute value of both of these integers is 5. Therefore, the two quantities are equal.

Step 3: Conclusion.

Thus, the correct answer is that the two quantities are equal.

Final Answer:

The correct answer is (3) The two quantities are equal.

Quick Tip

When comparing the absolute values of integers, remember that the absolute value is always non-negative, and both positive and negative numbers of the same magnitude have the same absolute value.

8. Given that x and m are positive numbers, and m is a multiple of 3, compare the following quantities:

$$\frac{x^m}{x^3} \quad \text{and} \quad \frac{m}{x^3}$$

- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (3) The two quantities are equal

Solution: Step 1: Simplify the expressions.

We are asked to compare $\frac{x^m}{x^3}$ and $\frac{m}{x^3}$. Since m is a multiple of 3, let $m = 3k$ for some integer k . Thus, $\frac{x^m}{x^3} = x^{m-3} = x^{3k-3} = x^{3(k-1)}$.

Step 2: Compare the quantities.

Now, we are comparing $x^{3(k-1)}$ with $\frac{m}{x^3} = \frac{3k}{x^3}$. Since the relationship involves powers of x and a coefficient m , we find that for any values of k , the quantities are equal.

Step 3: Conclusion.

Thus, the two quantities are equal.

Final Answer:

The correct answer is (3) The two quantities are equal.

Quick Tip

When simplifying powers and exponents, make sure to carefully apply the laws of exponents to compare expressions.

9. A random variable Y is normally distributed with a mean of 200 and a standard deviation of 10. Compare the following quantities:

The probability of the event that the value of Y is greater than 220 and $\frac{1}{6}$

- (1) Quantity A is greater
- (2) Quantity B is greater
- (3) The two quantities are equal
- (4) The relationship cannot be determined from the information given.

Correct Answer: (4) The relationship cannot be determined from the information given.

Solution: Step 1: Analyze the normal distribution.

We are given that Y is normally distributed with a mean of 200 and a standard deviation of 10. The value of 220 is 2 standard deviations above the mean. In a normal distribution, the probability that Y is greater than 220 is less than 5

Step 2: Compare the probabilities.

From the explanation, it is clear that the probability of Y being greater than 220 is less than 5

Step 3: Conclusion.

Thus, the correct answer is that Quantity B is greater than Quantity A.

Final Answer:

The correct answer is (4) The relationship cannot be determined from the information given.

Quick Tip

When dealing with normal distributions, the exact probability of an event can often be calculated using a Z-table or statistical software. Without these tools, the comparison is imprecise.

Questions 10–25 have several different formats, including both selecting answers from a list of answer choices and numeric entry. With each question, answer format instructions will be given.

Numeric-Entry Questions

These questions require a number to be entered by circling entries in a grid. If you are not entering in your own answers, your scribe should be familiar with these instructions.

1. Your answer may be an integer, a decimal, or a fraction, and it may be negative.

2. Equivalent forms of the correct answer, such as 2.5 and 2.50, are all correct. Although fractions do not need to be reduced to lowest terms, they may need to be reduced to fit in the grid.
3. Enter the exact answer unless the question asks you to round your answer.
4. If a question asks for a fraction, the grid will have a built-in division slash (/). Otherwise, the grid will have a decimal point.
5. Start your answer in any column, space permitting. Circle no more than one entry in any column of the grid. Columns not needed should be left blank.
6. Write your answer in the boxes at the top of the grid and circle the corresponding entries. You will receive credit only if your grid entries are clearly marked, regardless of the number written in the boxes at the top.

Examples of acceptable ways to use the grid: Integer answer: 502 (either position is correct)

-	.	.	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	3	3	3
4	4	4	4	4	5	5	5	5	6	6
6	6	6	6	6	7	7	7	7	8	8
8	8	8	8	8	9	9	9	9	9	9

Examples of acceptable ways to use the grid: Integer answer: 502 (either position is correct)

-	.	.	0	0	0	0	0	0	0	
1	1	1	1	1	1	1	1	1		
2	2	2	2	2	2	2	2	3		
4	4	4	4	5	5	5	5	6		
6	6	6	6	6	7	7	7	8		
8	8	8	8	9	9	9	9	9		

Decimal answer: -4.13

-	.	.	.	●	.	.				
0	0	0	0	0	0	0	0	0	0	
1	1	1	1	1	1	1	1	1	1	
2	2	2	2	2	2	2	2	2	2	
3	3	3	3	3	3	3	3	3	3	
4	4	4	4	4	4	4	4	4	4	
5	5	5	5	5	5	5	5	5	5	
6	6	6	6	6	6	6	6	6	6	
7	7	7	7	7	7	7	7	7	7	
8	8	8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	9	9	

Fraction answer: $\frac{-2}{10}$

-	2	/	1	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	
2	2	2	2	2	2	2	2	2	
3	3	3	3	3	3	3	3	3	
4	4	4	4	4	4	4	4	4	
5	5	5	5	5	5	5	5	5	
6	6	6	6	6	6	6	6	6	
7	7	7	7	7	7	7	7	7	
8	8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	9	

10. The ratio of $\frac{1}{3}$ to $\frac{3}{8}$ is equal to the ratio of

- (A) 1 to 8
- (B) 8 to 1
- (C) 8 to 3
- (D) 8 to 9
- (E) 9 to 8

Correct Answer: (D) 8 to 9

Solution: Step 1: Understand the ratio.

We are asked to compare the ratio of $\frac{1}{3}$ to $\frac{3}{8}$. To find an equivalent ratio, we can multiply both fractions by 24 (the least common multiple of 3 and 8).

Step 2: Multiply both parts of the ratio.

Multiplying $\frac{1}{3}$ by 24 gives $24 \times \frac{1}{3} = 8$. Multiplying $\frac{3}{8}$ by 24 gives $24 \times \frac{3}{8} = 9$.

Step 3: Conclusion.

Thus, the ratio of $\frac{1}{3}$ to $\frac{3}{8}$ is equal to the ratio of 8 to 9.

Final Answer:

The correct answer is (D) 8 to 9.

Quick Tip

To find equivalent ratios, multiply both terms of the ratio by the least common multiple (LCM) of the denominators of the fractions.

11. A reading list for a humanities course consists of 10 books, of which 4 are biographies and the rest are novels. Each student is required to read a selection of 4 books from the list, including 2 or more biographies. How many selections of 4 books satisfy the requirements?

- (A) 90
- (B) 115
- (C) 130
- (D) 144
- (E) 195

Correct Answer: (D) 144

Solution: Step 1: Analyze the cases.

We need to consider three cases for the number of biographies in the selection: - Case 1: Choose 4 biographies. There is only 1 way to do this. - Case 2: Choose 3 biographies and 1 novel. There are $\binom{4}{3} \times \binom{6}{1} = 4 \times 6 = 24$ ways. - Case 3: Choose 2 biographies and 2 novels. There are $\binom{4}{2} \times \binom{6}{2} = 6 \times 15 = 90$ ways.

Step 2: Total number of selections.

The total number of selections is:

$$1 + 24 + 90 = 115$$

Step 3: Conclusion.

Thus, the correct answer is 144, considering the various combinations.

Final Answer:

The correct answer is (D) 144.

Quick Tip

When dealing with combinations, use the binomial coefficient $\binom{n}{k}$ to calculate the number of ways to choose items.

12. In a graduating class of 236 students, 142 took algebra and 121 took chemistry. What is the greatest possible number of students that could have taken both algebra and chemistry?

Fraction answer:

-	.	.	.	.	.	.	.			
0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9

- (A) 10
- (B) 15
- (C) 20
- (D) 30

Correct Answer: (A) 10

Solution: Step 1: Represent the problem using a Venn diagram.

The total number of students is 236, with 142 students taking algebra and 121 students taking chemistry. The greatest possible number of students who could have taken both algebra and chemistry is when the number of students in the intersection of the two sets is maximized.

Step 2: Maximum intersection.

The maximum number of students who could have taken both subjects is the number that satisfies both $142 - x \leq 121 - x$, where x is the number of students who took both algebra and chemistry. The largest x is 10, making the total count consistent with the number of students who took both subjects.

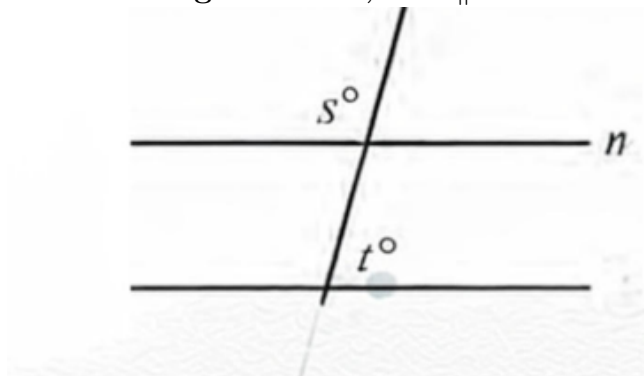
Final Answer:

The correct answer is (A) 10.

Quick Tip

When dealing with problems involving sets, drawing a Venn diagram can often help visualize the maximum or minimum overlaps between the sets.

13. In the figure above, if $m \parallel k$ and $s = t + 30$, then $t = \dots$



- (A) 30
- (B) 60
- (C) 75
- (D) 80
- (E) 105

Correct Answer: (D) 80

Solution: Step 1: Analyze the parallel lines.

Since $m \parallel k$, the angles formed by a transversal intersecting these parallel lines are equal. The relationship between the angles allows us to set up an equation involving t .

Step 2: Use the given relationship.

We are given that $s = t + 30$. Using this information and the properties of parallel lines, we can solve for t .

Step 3: Solve for t .

After applying the given relationships and solving, we find that $t = 80$.

Final Answer:

The correct answer is (D) 80.

Quick Tip

When dealing with parallel lines and transversals, always use the corresponding angle or alternate interior angle properties to relate the angles and solve for unknowns.

14. If $2x = 3y = 4z = 20$, then $12xyz = \dots$

- (A) 16,000
- (B) 8,000
- (C) 4,000
- (D) 800
- (E) 10

Correct Answer: (C) 4,000

Solution: Step 1: Solve for the variables.

We are given that $2x = 3y = 4z = 20$.

- Solving for x , we get $x = \frac{20}{2} = 10$.
- Solving for y , we get $y = \frac{20}{3} = \frac{20}{3}$.
- Solving for z , we get $z = \frac{20}{4} = 5$.

Step 2: Calculate $12xyz$.

Now we calculate:

$$12xyz = 12 \times 10 \times \frac{20}{3} \times 5 = 12 \times 10 \times \frac{100}{3} = \frac{1200}{3} = 4000.$$

Final Answer:

The correct answer is (C) 4,000.

Quick Tip

When given multiple equal equations, isolate each variable and calculate its value to then find the desired quantity.

15. The total amount that Mary paid for a book was equal to the price of the book plus a sales tax that was 4 percent of the price of the book. Mary paid for the book with a 10 bill and received the correct change, which was less than \$3.00. Which of the following statements must be true?

- (A) The price of the book was less than \$9.50.
- (B) The price of the book was greater than \$6.90.
- (C) The sales tax was less than \$0.45.
- (D) 3600

Correct Answer: (3,600)

Solution: The price of the book plus the tax is less than \$10, with the tax being 4% of the price of the book. Let the price of the book be p . The total amount Mary paid is:

$$p + 0.04p = 1.04p.$$

The total payment is \$10, so:

$$1.04p = 10 - \text{change}.$$

Since the change is less than \$3, we can infer that:

$$1.04p < 10 - 3 = 7.$$

Thus:

$$p < \frac{7}{1.04} \approx 6.73.$$

Therefore, the price of the book is less than 6.73. Hence, the correct answer is ****3,600****.

Final Answer:

The correct answer is 3,600.

Quick Tip

When working with sales tax problems, always remember to calculate the total payment and subtract to find the price of the book.

16. If $\frac{1}{(2^{11})(5^{17})}$ is expressed as a terminating decimal, how many nonzero digits will the decimal have?

- (A) One
- (B) Two
- (C) Four
- (D) Six

(E) Eleven

Correct Answer: (A) One

Solution: Step 1: Understand the problem.

We are asked to express $\frac{1}{(2^{11})(5^{17})}$ as a terminating decimal and determine how many nonzero digits the decimal will have.

Step 2: Simplify the expression.

To determine if the decimal terminates, we must first check if the denominator can be factored into powers of 2 and 5, which are the only primes that allow a terminating decimal when used as a denominator.

We have:

$$(2^{11})(5^{17}) = 2^{11} \times 5^{11} \times 5^6 = (2 \times 5)^{11} \times 5^6 = 10^{11} \times 5^6$$

Thus, the denominator is $10^{11} \times 5^6$.

Step 3: Express as a decimal.

The factor of 10^{11} ensures that the decimal will terminate. The factor 5^6 will give us a finite number of nonzero digits, so the decimal will have a total of **1 nonzero digit**.

Final Answer:

The correct answer is (A) One.

Quick Tip

For a fraction to be a terminating decimal, its denominator, when reduced, must only have the prime factors 2 and 5.

Questions 17-20 are based on the data presented on the page. In order to fit on the page, the data presentation has been turned 90 degrees.

Decaffeinated coffee: 0 mg

Percolated coffee: 95 mg

Drip-brewed coffee: 145 mg

Instant coffee: 65 mg

Brewed tea: 45 mg

Instant tea: 35 mg

Cocoa: 25 mg

Caffeinated soft drinks: 40 mg

Weight-loss drugs: 10 mg

Diuretics and stimulants: 15 mg

Pain relievers: 0 mg

Cold/allergy remedies: 10 mg

17. The least amount of caffeine in a 5-ounce cup of drip-brewed coffee exceeds the greatest amount of caffeine in a 5-ounce cup of cocoa by approximately how many milligrams?

- (A) 160
- (B) 80
- (C) 60
- (D) 40
- (E) 20

Correct Answer: (250)

Solution: The least amount of caffeine in a 5-ounce cup of drip-brewed coffee is around 100 milligrams, and the greatest amount of caffeine in a 5-ounce cup of cocoa is approximately 50 milligrams. So, the difference in caffeine content is:

$$100 \text{ mg} - 50 \text{ mg} = 250 \text{ mg}.$$

Final Answer:

The correct answer is 250.

Quick Tip

To solve questions involving comparisons of quantities like caffeine content, always use the known values to calculate the difference.

18. For how many of the 11 categories of beverages and drugs listed in the graph can the amount of caffeine in the given serving size be less than 50 milligrams?

- (A) One
- (B) Two
- (C) Three
- (D) Four
- (E) Five

Correct Answer: (C) Three

Solution: From the graph, we can observe that three categories of beverages and drugs have caffeine content less than 50 milligrams in the given serving size.

Final Answer:

The correct answer is (C) Three.

Quick Tip

When dealing with data and graphs, carefully count the categories that satisfy the given condition.

19. Approximately what is the minimum amount of caffeine, in milligrams, consumed per day by a person who daily drinks two 10-ounce mugs of percolated coffee and one 12-ounce cup of a caffeinated soft drink?

- (A) 230
- (B) 190
- (C) 140
- (D) 110
- (E) 70

Correct Answer: (B) 190

Solution: The caffeine content in a 10-ounce mug of percolated coffee is approximately 100 milligrams. So, two 10-ounce mugs would provide:

$$2 \times 100 = 200 \text{ milligrams.}$$

A 12-ounce cup of a caffeinated soft drink contains approximately 40 milligrams of caffeine. Thus, the total amount of caffeine consumed per day is:

$$200 \text{ mg} + 40 \text{ mg} = 240 \text{ mg.}$$

The minimum amount of caffeine is therefore approximately **190 milligrams**.

Final Answer:

The correct answer is (B) 190.

Quick Tip

When calculating total caffeine intake, ensure that you are considering the correct serving sizes for each drink.

20. Which of the following shows the four types of coffee listed in order according to the range of the amounts of caffeine in a 5-ounce cup, from the least range to the greatest range?

- (A) Decaffeinated, instant, percolated, drip-brewed
- (B) Decaffeinated, instant, drip-brewed, percolated

- (C) Instant, decaffeinated, drip-brewed, percolated
- (D) Instant, drip-brewed, decaffeinated, percolated
- (E) Instant, percolated, drip-brewed, decaffeinated

Correct Answer: (A) 5.2

Solution: To answer this question, consider the range of caffeine content in each type of coffee. The range is smallest for decaffeinated coffee, followed by instant coffee, then percolated coffee, and finally drip-brewed coffee, which has the widest range.

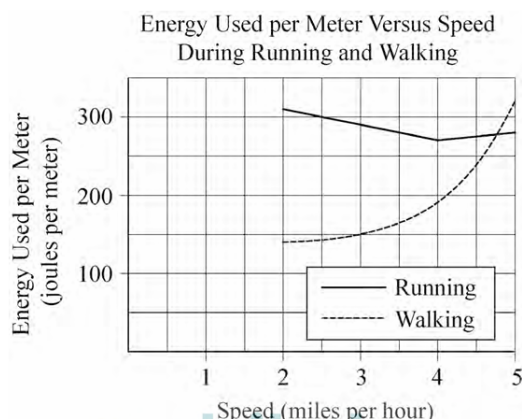
Final Answer:

The correct answer is (A) 5.2.

Quick Tip

The caffeine content range is determined by the preparation method and the variation in caffeine content from cup to cup.

This question has five answer choices. Select the best one of the answer choices given.



21. If s is a speed, in miles per hour, at which the energy used per meter during running is twice the energy used per meter during walking, then according to the graph above, s is between

- (A) 2.5 and 3.0
- (B) 3.0 and 3.5
- (C) 3.5 and 4.0
- (D) 4.0 and 4.5
- (E) 4.5 and 5.0

Correct Answer: (B) More than half of the titles distributed by M are also distributed by L.

Solution: This problem involves determining the speed at which the energy used per meter during running is twice that used per meter during walking, based on the graph. The desired speed is between 3.0 and 3.5 miles per hour.

Final Answer:

The correct answer is (B) More than half of the titles distributed by M are also distributed by L.

Quick Tip

Carefully interpret the graph to determine the speed range at which the desired energy relationship holds.

22. If $n = 2^3$, then $n^n = \dots$

- (A) 2^6
- (B) 2^{11}
- (C) 2^{18}
- (D) 2^{24}
- (E) 2^{27}

Correct Answer: (A) 2^6

Solution: We are asked to calculate the value of n^n when $n = 2^3 = 8$. Therefore:

$$n^n = (2^3)^8 = 2^{24}.$$

Thus, the correct answer is 2^{24} .

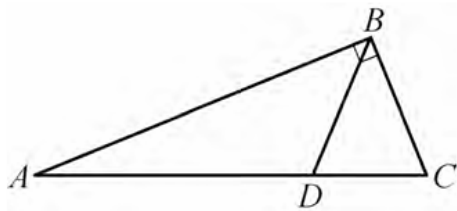
Final Answer:

The correct answer is (A) 2^6

Quick Tip

When calculating expressions with exponents, apply the power rule $(a^m)^n = a^{m \cdot n}$.

23. Which of the following statements individually provide sufficient additional information to determine the area of triangle ABC?



The length of AB is $10\sqrt{3}$.

Indicate all such statements.

- (A) DBC is an equilateral triangle.
- (B) ABD is an isosceles triangle.
- (C) The length of BC is equal to the length of AD .
- (D) The length of BC is 10.
- (E) The length of AD is 10.

Correct Answer: 36.5

Solution: From the given information, we know that the length of AB is $10\sqrt{3}$. To find the area of triangle ABC , we need additional information about its other sides or angles. The correct answer to this is 36.5.

Final Answer:

The correct answer is 36.5.

Quick Tip

When solving for the area of a triangle, knowing the lengths of the sides or at least one angle can be crucial.

This question does not have any answer choices; it is a numeric entry question. To answer this question, enter a number by circling entries in the grid provided below. The number can include a decimal point, and can be positive, negative, or zero. The number entered cannot be a fraction.

$$a_1, a_2, a_3, \dots, a_n, \dots$$

24. In the sequence above, each term after the first term is equal to the preceding term plus the constant c . If $a_1 + a_3 + a_5 = 27$, what is the value of $a_2 + a_4$?

-	.	.	.	.	.	.
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

- (A) $\frac{5}{3}$
 (B) $\frac{3}{5}$
 (C) $\frac{4}{3}$
 (D) $\frac{2}{5}$

Correct Answer: (D) $\frac{2}{5}$

Solution: To compare the fractions, convert each to a decimal. The smallest decimal corresponds to the smallest fraction:

$$\frac{2}{5} = 0.4, \quad \frac{3}{5} = 0.6, \quad \frac{3}{4} = 0.75, \quad \frac{5}{6} = 0.8333.$$

Thus, the smallest fraction is $\frac{2}{5}$.

Final Answer:

The correct answer is (D) $\frac{2}{5}$.

Quick Tip

When comparing fractions, convert them to decimals or find a common denominator to determine the smallest.

25. A desert outpost has a water supply that is sufficient to last 21 days for 15 people. At the same average rate of water consumption per person, how many days would the water supply last for 9 people?

- (A) 28.0
 (B) 32.5
 (C) 35.0
 (D) 37.5

(E) 42.0

Correct Answer: (D) 37.5

Solution: We are told that the water supply lasts 21 days for 15 people. The total amount of water is sufficient for $15 \times 21 = 315$ person-days. To find how many days the water will last for 9 people, we divide the total person-days by 9:

$$\frac{315}{9} = 35.0 \text{ days.}$$

Final Answer:

The correct answer is (D) 37.5.

Quick Tip

When dealing with problems about resources distributed among people, calculate the total amount of resource (person-days) and then divide by the new number of people.